

## Message Text

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ACTION OES-07

INFO OCT-01 EA-12 ISO-00 CIAE-00 INR-07 NSAE-00 PASS-00

/027 W

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TO ERDA GERMANTOWN  
ERDA WASHDC  
SECSTATE WASHDC 875

UNCLAS TOKYO 13681

ERDA FOR MORABITO, HUNTER

STATE PASS TO GETEWSKI  
HANFORD ENGINEERING DEVELOPMENT LABORATORY  
P.O. BOX 1970  
RICHLAND, WASHINGTON 99352

E.O. 11652: N/A  
TAGS: TECH, JA  
SUBJECT: US-JAPAN MTG LEAK BEFORE BREAK & ISI, OCT 3-HEDL

REF: SEPT 7 TELECON GEJEWWSKI-HENOCHE

1. FOLLOWING IS ABSTRACT OF TOPICS ON PIPING INTEGRITY  
RATIONALE JUST RECEIVED FROM PNC PER AGREEMENT REFTEL:

### A. INTRODUCTION/OVERVIEW

THE EVALUATION OF PHTS (PRIMARY HEAT TRANSPORT SYSTEM)  
PIPING INTEGRITY IS ONE OF THE MAIN THEMES IN THE COURSE  
OF THE SAFETY EVALUATION OF THE LOOP-TYPE LMFBR PLANT,  
BECAUSE THE JAPANESE PORTO-TYPE FBR, MONJU EMPLOYS THE  
LOOP DESIGN, LIKE THE CRBRP OF THE USA. PNC WILL PRESENT  
THE EVALUATION SYSTEM OF PIPING INTEGRITY ALONG WITH  
FOLLOWING TOPICS TO OVERVIEW THE THEME:

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- 1) APPROACH TO LOPI (LOSS OF PIPING INTEGRITY) IN THE  
SAFETY EVALUATION OF THE EXPERIMENTAL FBR JOYO.
- 2) PNC'S DESIGN PHILOSOPHY CONCERNING LOPI ACCOMMODATION  
FOR MONJU.

B. PHTS (PRIMARY HEAT TRANSPORT SYSTEM) DESCRIPTION  
PNC WILL PRESENT THE SPECIFICATION AND PIPING DESIGN  
ETC. OF THE PHTS OF MONJU WHICH IS CURRENTLY UNDER  
DESIGN.

C. PIPING INTEGRITY ASSURANCE

1. QUALITY ASSURANCE

PNC WILL PRESENT THE CONCEPT OF QUALITY ASSURANCE FOR  
CONSTRUCTION OF THE MONJU PHTS PIPING.

2. PIPING STRESS ANALYSIS

PNC WILL PRESENT THE FOLLOWING TWO TOPICS WHICH COVER  
THE PRESENT STATUS AND R&D PROGRAM OF THE STRESS ANALYSIS  
FOR MONJU PHTS PIPING DESIGN.

1) CONVENTIONAL ELASTIC STRESS ANALYSIS WITH SIMPLIFIED  
STRESS INDICES METHOD AND ITS RESULTS.

2) DEVELOPMENT OF ELASTIC STRESS ANALYSIS METHODS WITH  
DETAILED STRESS INDICES METHOD.

3. PIPING MATERIAL CRACK GROWTH FRACTURE MECHANICS

PNC WILL CONTRIBUTE TO THE DISCUSSIONS OF THE TOPICS  
BASED ON THE LITERATURE SURVEY OF THE FRACTURE MECHANICS  
OF LOW-CYCLE FATIGUE CRACK GROWTH OF TYPE 304 STAINLESS  
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STEEL WHICH IS ONE OF THE PIPING MATERIALS FOR THE  
MONJU PHTS.

D. LEAK BEFORE BREAK--EXPERIMENTAL AND ANALYTICAL RESULTS

1. CRACK GROWTH MORPHOLOGY

PNC WILL PRESENT THE FOLLOWING TOPICS BASED ON THE  
RESULTS OF MANY PIPING COMPONENTS TESTS PERFORMED AT  
THE O-ARAI ENGINEERING CENTER.

1) MORPHOLOGY OF THE LOW-CYCLE FATIGUE CRACK GROWTH  
OF THE WELDED ELBOW UNDER CYCLIC BENDING MOMENT LOADS.

2) MORPHOLOGY OF THE LOW-CYCLE FATIGUE CRACK GROWTH  
OF THE OTHER PIPING COMPONENTS UNDER CYCLIC BEINDING  
MOMENT LOADS.

3) CRACK GROWTH MORPHOLOGY OF THE THERMAL CYCLE FATIGUE  
FAILURE OF THE PIPE CAUSED BY THE TEMPERATURE CHANGES  
OF THE INTERNAL FLUID.

2. CRITICAL CRACK SIZE

PNC WILL PRESENT FOLLOWING TOPICS BASED ON THE RESULTS OF  
THE EXPERIMENTS WITH SCALED-DOWN MODELS OF THE TYPE 304  
STAINLESS STEEL PIPING:

- 1) CRITICAL CRACK SIZE AGAINST INTERNAL PRESSURE LOADING.
- 2) CRITICAL CRACK SIZE AGAINST WEIGHT LOADING AT THE BREAK  
OF A SUPPORT.

3. CORROSION EFFECTS OF LEANING SODIUM

PNC WILL PRESENT FOLLOWING TOPICS:

- 1) EXPERIENCES OF COOROSION BY LEAKING SODIUM IN THE  
SODIUM LOOPS AT THE O-ARAI ENGINEERING CENTER.

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2) PLANNING OF EXPERIMENTS ON THE CORROSION EFFECTS OF  
LEAKING SODIUM.

2. AS INDICATED REFTEL, PNC EXPECTS FULL PAPERS COMPLETE  
WITHIN 10 DAYS. EMBASSY WILL FORWARD TO RDD AND HEDL  
UPON RECEIPT.

3. PNC WILL HAVE AVAILABLE VG MACHINE AND 35 MM SLIDE  
PROJECTOR.

MANSFIELD

NOTE BY OC/T: PASSED ABOVE ADDEE.

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## Message Attributes

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